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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,227	01/14/2004	Jimmie Earl DeWitt JR.	AUS920030555US1	3250
35525	7590	02/28/2006	EXAMINER	
IBM CORP (YA)			SAVLA, ARPAN P	
C/O YEE & ASSOCIATES PC			ART UNIT	
P.O. BOX 802333			PAPER NUMBER	
DALLAS, TX 75380			2185	

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/757,227

Applicant(s)

DEWITT ET AL.

Examiner

Arpan P. Savla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/14/04, 7/1/05
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

The instant application having Application No. 10/757,227 has a total of 21 claims pending in the application, there are 3 independent claims and 18 dependent claims, all of which are ready for examination by Examiner.

### **INFORMATION CONCERNING OATH/DECLARATION**

#### **Oath/Declaration**

1. Applicant's oath/declaration has been reviewed by Examiner and is found to conform to the requirements prescribed in 37 CFR 1.63.

### **INFORMATION CONCERNING DRAWINGS**

#### **Drawings**

2. Applicant's drawings submitted January 14, 2004 are acceptable for examination purposes.

### **ACKNOWLEDGMENT OF REFERENCES CITED BY APPLICANT**

#### **Information Disclosure Statement**

3. As required by MPEP § 609(c), Applicant's submission of both Information Disclosure Statements dated January 14, 2004 and July 1, 2005 are acknowledged by Examiner and cited references have been considered in the examination of the claims now pending. As required by MPEP § 609 c(2), a copy of the PTOL-1449 initialed and dated by Examiner is attached to the instant office action.

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**OBJECTIONS**

**Specification**

4. The disclosure is objected to because of the following informalities:
5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
6. In the section entitled "Cross Reference to Related Applications" Applicant must properly identify all co-pending applications with their corresponding application numbers (i.e. serial numbers).

Appropriate correction is required.

**REJECTIONS NOT BASED ON PRIOR ART**

**Claim Rejections - 35 USC § 101**

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. **Claims 11-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.** Claims 11-20 are not limited to tangible embodiments. In view of Applicant's disclosure, pg. 125, line 23 – pg. 126, line 11, the computer readable medium is not limited to tangible embodiments, instead being define as including both tangible embodiments (e.g. recordable-type media, such as a floppy disk, hard disk drive, a RAM, CD-ROMS, and DVD-ROMS) and intangible

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embodiments (e.g. transmission forms, such as radio frequency and light wave transmissions). As such, claims 11-20 are not limited to statutory subject matter and are therefore non-statutory.

**Claim Rejections - 35 USC § 112**

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. **Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

11. **As per claims 1, 3, 11, 13, and 21**, the claims recite the limitation "the contents of the cache line" in lines 11, 2, 13, 2, and 11 respectively. There is insufficient antecedent basis for this limitation in the claims. Applicant may consider amending the claims to read "a contents of the cache line."

12. **Claims 3 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

13. **As per claims 3 and 13**, the claims recites the limitation "the code of the computer program" in lines 6 and 7 respectively. There is insufficient antecedent basis for this limitation in the claims. Applicant may consider amending the claims to read "code of the computer program."

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**14. Claims 5-10 and 15-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

**15. As per claims 5, 6, 10, 15, 16, and 20**, the claims recite the limitation "the reload operation" in lines 10, 2, 3, 10, 2, and 4 respectively. There is insufficient antecedent basis for this limitation in the claims. Applicant may consider amending the claims to read "the reload."

**16. Claims 6-9 and 16-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

**17. As per claims 6, 7, 16, and 17**, it is unclear whether the "value of the first processor flag bit" recited in lines 10, 7, 11, and 9 respectively is the same as the "first value of the first processor flag bit" recited in lines 4, 2, 4, and 3 respectively or a completely different "value of the first processor flag bit." Applicant may consider amending "first value of the first processor flag bit" to read "value of the first processor flag bit" instead.

### **Conclusion**

### **STATUS OF CLAIMS IN THE APPLICATION**

The following is a summary of the treatment and status of all claims in the application as recommended by MPEP 707.70(i):

**Allowable Subject Matter**

18. **Claims 1-10 and 21** would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
19. **Claims 11-20** would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 101 set forth in this Office action.
20. The primary reasons for allowance of **claims 1-21** in the instant application is the combination with the inclusion in these claims that **"identifying false cache line sharing during execution of a computer program in a multiprocessor data processing system, comprising: determining whether the cache line is being falsely shared between processors based on values of the processor flag bits."** The prior art of record neither anticipates nor renders obvious the above recited combination.
21. As allowable subject matter has been indicated, applicant's response must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 C.F.R. § 1.111(b) and § 707.07(a) of the MPEP.

**RELEVANT ART CITED BY THE EXAMINER**

The following prior art made of record and not relied upon is cited to establish the level of skill in Applicant's art and those arts considered reasonably pertinent to Applicant's disclosure. See MPEP 707.05(e).

22. U.S. Patent 5,710,881 discloses a data merging method and apparatus for shared memory multiprocessing computer systems.

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23. U.S. Patent 5,822,763 discloses cache coherence protocol for reducing the effects of false sharing in non-bus-based shared-memory multiprocessors.
24. U.S. Patent 5,928,334 discloses a method for detecting synchronization violations in a multiprocessor computer system.
25. U.S. Patent 6,094,709 discloses a method of reducing false sharing in a shared memory system by enabling two caches to modify the same line at the same time.
26. U.S. Patent 6,285,974 discloses a method for detecting architectural violations in a multiprocessor computer system.
27. U.S. Patent 6,636,950 discloses computer architecture for shared memory access.
28. U.S. Patent Application Publication 2004/0205302 discloses a method and system for postmortem identification of falsely shared objects.

#### **Non-Patent Literature**

Torrellas et al., "False Sharing and Spatial Locality in Multiprocessor Caches", June 1994, IEEE Transactions on Computers, Vol. 43, No. 6, pp. 651-663.

Rothman et al., "Analysis of Shared Memory Misses and Reference Patterns", 2000, IEEE, pp. 187-198.

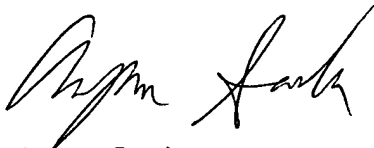


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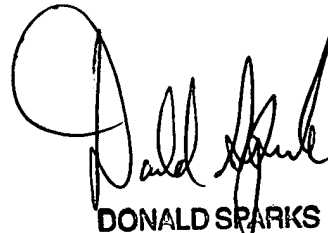
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arpan P. Savla whose telephone number is (571) 272-1077. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arpan Savla  
Assistant Examiner  
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February 14, 2006



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